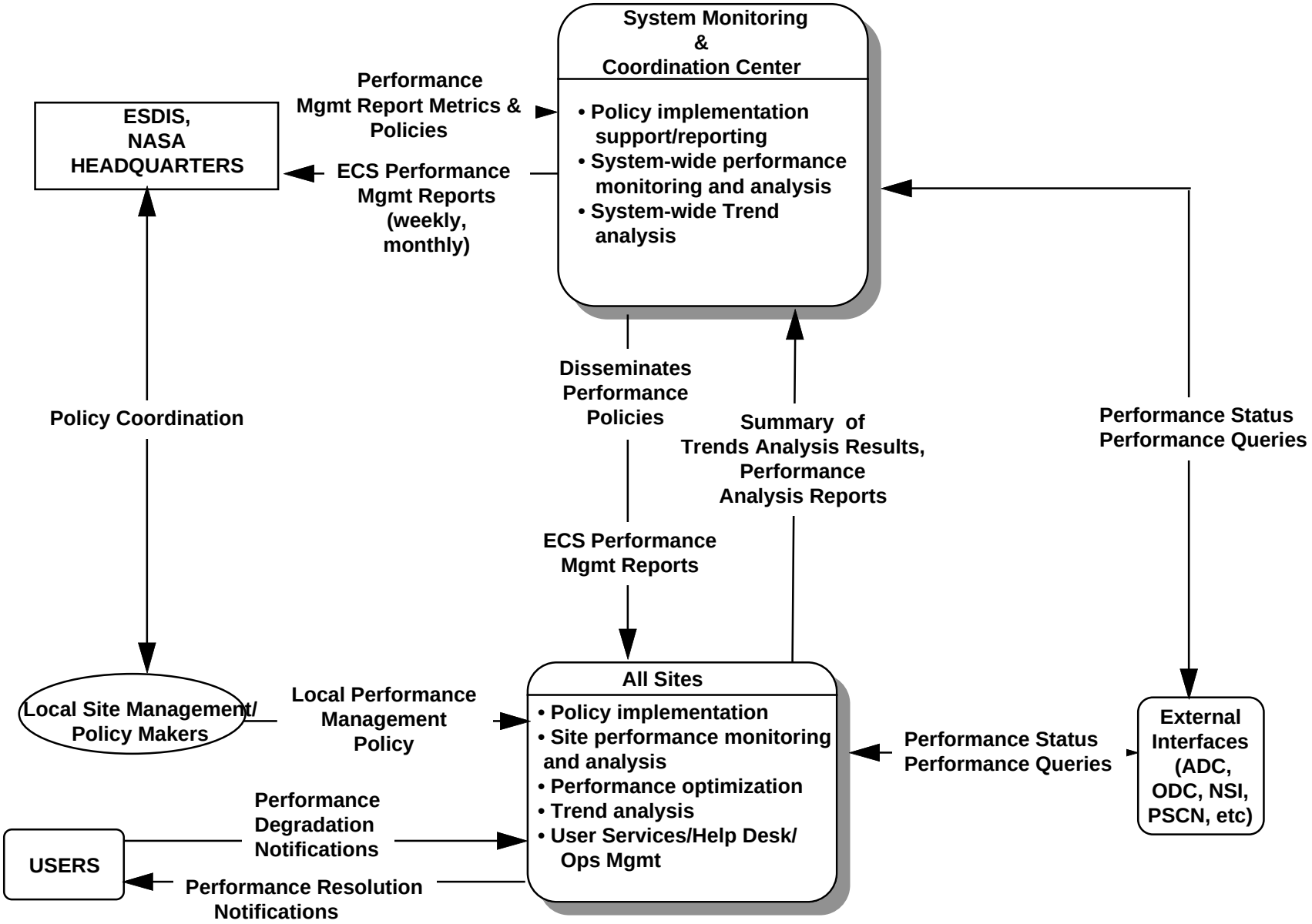
- **Performance Management addresses the following areas:**
  - **Performance monitoring and analysis**
    - **the collection and analysis of performance data**
    - **automated analysis is a comparison of values against pre-defined thresholds**
    - **tracing transactions associated with product requests through the system**
  - **Performance trending**
    - **extracting key variables and plotting their values over time**
  - **Performance Reporting**
    - **ability to produce multi-colored graphical representation of the data, sorted in configurable ways**
  - **Performance Testing**
    - **test network components prior to releasing them for operations**
    - **predict the need for additional network capacity**

- **Performance Management for Release A addresses the performance of the following components:**
  - **Network components (routers, links, bridges, gateways)**
  - **ECS hosts and peripherals**
  - **Operating systems (of ECS hosts)**
  - **ECS databases**
  - **ECS applications**
  - **Scientific software (via the SDPS toolkit)**


System Monitoring & Coordination Center
• Policy implementation support/reporting
• System-wide performance monitoring and analysis
• System-wide Trend analysis
ESDIS, NASA HEADQUARTERS
Performance Mgmt Report Metrics & Policies
ECS Performance Mgmt Reports (weekly, monthly)
Policy Coordination
Disseminates Performance Policies
Summary of Trends Analysis Results, Performance Analysis Reports
Performance Status Performance Queries
ECS Performance Mgmt Reports
Local Site Management/ Policy Makers
Local Performance Management Policy
All Sites
• Policy implementation
• Site performance monitoring and analysis
• Performance optimization
• Trend analysis
• User Services/Help Desk/ Ops Mgmt
Performance Status Performance Queries
External Interfaces (ADC, ODC, NSI, PSCN, etc)
Performance Degradation Notifications
USERS
Performance Resolution Notifications

- **ESDIS Management**
  - **Establishes performance reporting policies**

- **DAAC/SMC Management**
  - **Adapt site/system performance policies and procedures**
  - **Review site/system performance trending**
  - **Approves site/system performance problem resolution**

- **SMC Performance Analysis (online/offline)**
  - **Monitors and analyzes ECS trends**
  - **Disseminates ECS performance policies and procedures**
  - **Coordinates ECS performance problems with DAACs and external interfaces i.e., Wide Area Network interface**
  - **Verifies problem resolution**
  - **Generates reports**

- **DAAC Performance Analysis (online/offline)**
  - **Monitors and analyzes DAAC performance trends**
  - **Implements local and ECS performance Policies and Procedures**
  - **Coordinates local performance problems with other DAACs/SMC**
  - **Verifies problem resolution**
  - **Generates Reports**
- **User Services**
  - **Provide the interface for users reporting performance problems**
- **Users**
  - **Report performance problems**
  - **Support performance analysis and resolution**
  - **Provide system satisfaction metrics**

- **Performance Management Functions**
  - **Establish and Maintain:**
    - » **performance metrics, thresholds, policies w.r.t. reporting**
    - » **standard operating and analysis procedures - draw from V0 lessons learned**
  - **Set up Performance Management system for Data Collection (Authorizations are set up for roles. These may be reconfigured/ shared)**
    - » **Set up frequency of sampling**
  - **Analysis**
    - » **Establish notification mechanisms for degradation**
    - » **Analyze resource utilization, predict/identify bottlenecks**

- **Tuning/Optimization**
  - » **Modify parameters**
  - » **Reallocate resources**
  - » **System upgrades**
  - » **Redefine operational processes and procedures**
- **Reporting**
  - » **By user, machine, function, etc**
    - **Graphical**
    - **Tabular**
    - **E-mail (text)**

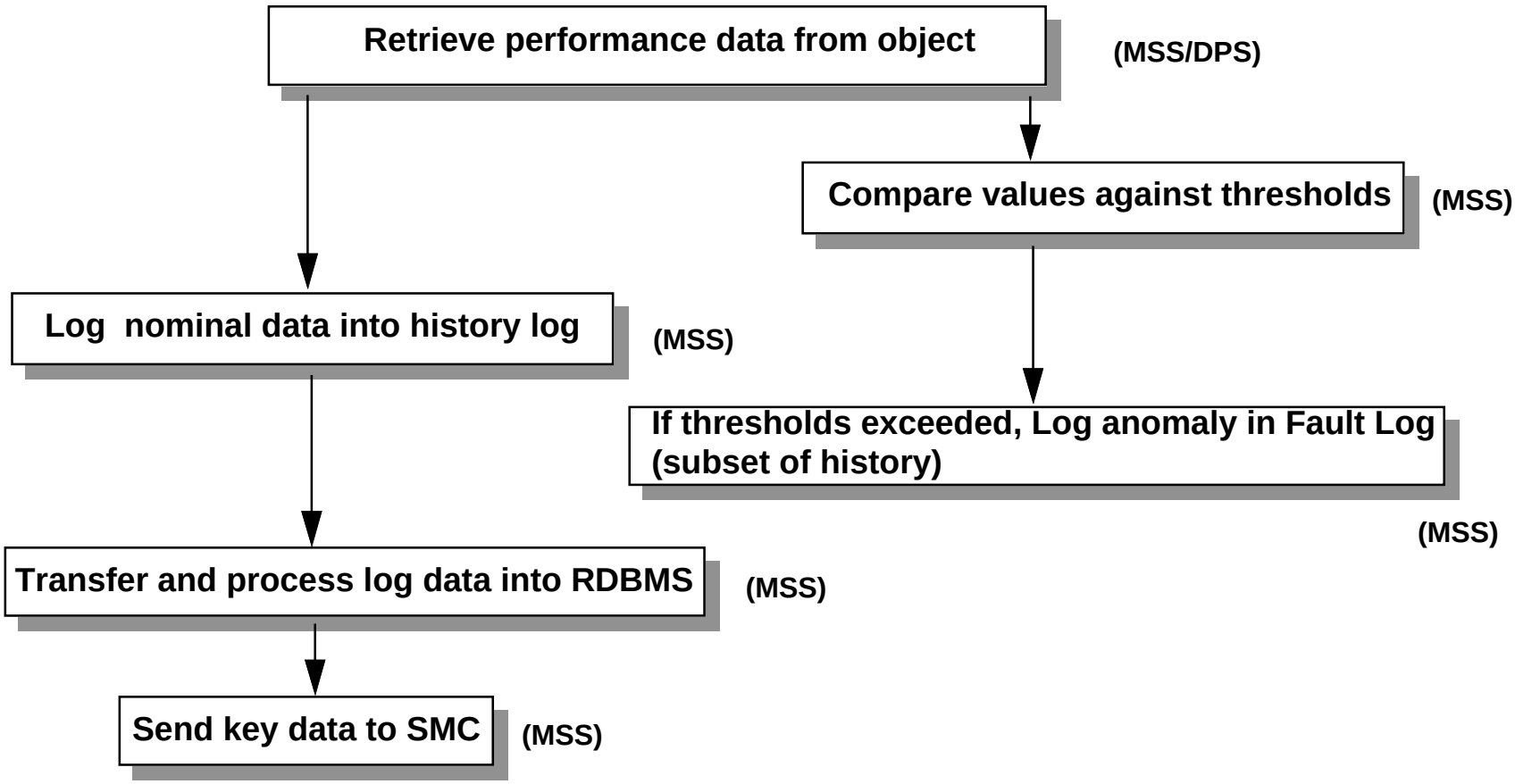
Mapping of Tools to Functions

Function	Tools Available	Functionality/Capability Provided
Establish and maintain metrics, thresholds	HP OpenView	Thresholds on parameters
Data Collection	HP OpenView Event logs Other COTS	APIs in SDPS toolkit, History Log Measure line stats., protocol stats, cpu util, mem util
Analysis	HP OpenView/ Other COTS	Graphs
Tuning/Optimization	SOPs	Manual, based on Analysis
Reporting	HP OpenView RDBMS reporting tools	Graphs Tabular reports
Testing	Standard tests In-house Benchmarks	File transfer times Round trip times between hosts

Performance Management Process - Overview

- **Data collection and logging occur “behind the scenes”**
  - **No operator notification during “normal” operations**
- **Operator access via RDBMS and browsing history logs**
- **Operators notified when certain thresholds exceeded**
  - **Threshold conditions configurable**
  - **Notification method also configurable**

Performance Management Process



Note: Science Software statistics are logged - logged files are saved and available for post analysis

Performance Management Process (cont.)

1.

Operator Queries System	
System	**Operator action**
	a. Operator clicks on RDBMS icon
b. Query tool initiated on operator workstation	**c. Operator requests latest performance data from system x**
d. System displays requested data base entries	**e. Operator decides more recent data needed, presses “current log” icon**
f. System copies log contents to file, brings up editor on operator screen with current log files	

Performance Management Process (cont.)

Anomaly Condition	
System	**Operator action**
	a. Predefined threshold conditions and responses configured prior to operations
b. “Threshold Exceeded” flag set in system	
c. System accesses table to determine notification mechanism	
d. System performs operator notification (could be audible alarm, icon changing color OpenView, message written to console, etc)	
	e. Operator acknowledges system notification and investigates situation